

TAMPER EVIDENT PLASTIC BAG INCORPORATING A  
COMBINATION ZIPPER AND DOUBLE RESEALABLE  
ENCLOSURE AND METHOD OF MANUFACTURING THE SAME

BACKGROUND OF THE INVENTION

5      FIELD OF THE INVENTION

The present invention relates generally to a tamper evident plastic bag enclosure, such as a medicine, food or other suitable bag. More particularly, the present invention teaches a bag device and associated method of manufacturing including the features of a heat sealable, or adhesive strip sealable, bottom and a double resealable top with attached zipper and tear away (tamper evident) header portion.

10      DESCRIPTION OF THE PRIOR ART

The prior art is well documented with examples of reclosable plastic bag devices, these each typically including male and female extending and interlocking profiles, as well as a sealed and moisture resistant interior. The use of such bags is prevalent in the known art and for a wide range of applications.

U.S. Patent No. 5,511,884, issued to Bruno et al., teaches a reclosable plastic bag with male and female interlocking profiles and which is described as being easily openable and reclosable. The bag includes mating profiles, and which further includes a selected non-engaging section such that the profiles cannot interlock at that section. The non-engaging section permits a user to more easily open the bag when the separating action of the profiles is initiated at the non-engaging section. The non-engaging section also permits air to

escape as the bag and profiles are pressed together to close, thus to enable easier closing of the bag when product is contained therein.

U.S. Patent No. 4,846,586, also issued to Bruno, teaches a reclosable plastic bag having mating interlocking profiles. Each of the bags includes a  
5 band of double thickness, formed adjacent the mouth of the bag and a pocket formed by the band and the panel surface of the bag to facilitate handling of the bag such as by inserting the user's finger in the pocket and grasping the band.

U.S. Patent No. 4,290,467, issued to Schmidt, teaches a reclosable film plastic bag and method of making the same and which includes a display bag  
10 with front and rear walls joined at side and bottom and which provides an openable top with complementary separable fastener profiles in the walls across the openable top, and with a fastener opening pull flange substantially shorter than its rear fastener-opening pull flange. A panel is jointed to the front of the rear pull flange to provide therewith a plural thickness header having, as  
15 required, matching hang-up holes through the panel and rear pull flange. A header reinforcing bead structure secures the upper edges of the panel and the rear pull flange together. The panel and rear pull flange define therebetween a downwardly opening pocket adapted to house identification means and a method of making the bag from a plastic extrusion is also disclosed.

20 U.S. Patent No. 5,908,245, issued to Bost et al., teaches a reclosable plastic bag having a bottom, sides and a mouth as well as a reclosable zipper for opening and resealing the plastic bag mouth. Heat seals are placed at each end of the zipper and each heat seal has an aperture therethrough and may form

a pair of protruding hanging tabs. A protruding center tab extends from each side of the bag above the zipper and extends above the mouth of the bag such that each tab can be grabbed for opening the reclosable zipper.

5 A method of making a reclosable zipper bag according to Bost is further disclosed and includes the steps of forming a plastic bag having bottom, sides and a mouth, having a reclosable zipper for opening and resealing the plastic bag mouth and heat sealing each end of the plastic bag zipper to seal the two sides together. Additional steps include punching an aperture in each of the heat seals, cutting a protruding center tab in the plastic bag and forming an  
10 aperture through the center tab to form a reclosable plastic bag which is easily opened and resealed and has supporting tabs.

Finally, U.S. Patent No. 4,363,345, issued to Scheibner, discloses a reclosable container featuring ridges near the opening of the container and to provide improved gripping of the container by the user during the opening and  
15 loading of the container. Flexible first and second sidewalls each further include first and second associated closure profiles positioned on respective first and second sidewalls and operable for being occluded and disengaged with respect to each other to close and open the container.

#### SUMMARY OF THE PRESENT INVENTION

20 The present invention discloses a bag device including the features of a heat sealable, or adhesive strip sealable, bottom and a double resealable top with attached zipper and tear away (tamper evident) header portion. The present invention is further an improvement over the prior art in that it provides

an improved tamper evident resealable bag device for holding such as medicines and the like.

First and second sheets of a plasticized material are secured together along opposite extending side edges. A pair of reclosable portions extend in  
5 opposing and spaced apart fashion and proximate a top extending edge of the sheets of material. A looped header portion extends from the reclosable portions and along a selected distance corresponding to the top.

A zipper is secured over the reclosable portions in proximity to the looped header portion. The zipper includes a pair of upper and lower axially  
10 extending slots, corresponding in placement with the spaced apart reclosable portions, and such that an upper one of the slots includes a dividing member extending in one direction and for disengaging the associated pair of reclosable portions.

One or more items are pre-inserted into an open bottom established  
15 between the opposite extending sides of the first and second sheets and prior to sealingly engaging the bottom. The bottom is engaged in a permanent (tamper-evident openable) fashion and through the provision of either an adhesive (permanent seal) tape or, alternatively, by heat staking together the bottom edges of the first and second sheets.

20 In order to open the bag, the zipper is traversed along the reclosable portions, in order to section the tamper-evident looped header portion, and in combination with opening an upper one of the pairs of reclosable portions. The lower pair of reclosable portions is subsequently manually disengaged, such as

by the user pulling apart at the seams, and to complete the opening process of the bag. A method for manufacturing a tamper evident and resealable bag is also disclosed, incorporating the structure as substantially described above.

#### BRIEF DESCRIPTION OF THE DRAWINGS

5           Reference will now be made to the attached drawings, when read in combination with the following detailed description, wherein like reference numerals refer to like parts throughout the several views, and in which:

          Fig. 1A is an environmental view of the resealable bag device with tear away and tamper evident header according to the present invention;

10           Fig. 1B is a modified view of the bag device as substantially illustrated in Fig. 1A and further showing an opened and adhesively/heat sealable bottom for initially containing the desired articles;

          Fig. 2 is an enlarged and exploded partial view of the zipper and double reclosable portions associated with the resealable bag device according to the  
15           present invention;

          Fig. 3 is a succeeding and assembled view to that shown in Fig. 2 and illustrating the zipper assembled onto the double reclosable portions, in combination with a portion of the tamper-evident header being removed and the opposite ends of the top heat staked;

20           Fig. 4 is a succeeding partial view illustrating the progressive removal of the tamper evident header and resulting from traversing motion of the zipper along the pairs of reclosable portions;

Fig. 5 is a plan view of an alternate configuration of the double resealable bag and illustrating a manually tear away and tamper evident header according to the present invention; and

Fig. 6 is a perspective view similar to that previously shown in Fig. 1A  
5 and illustrating variation in the shaping of the tamper evident header portion.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to Fig. 1A, an environmental view is illustrated at 10 of a tamper evident and resealable bag device for containing a prepackaged item, such as further illustrated without limitation as being a medicine container 12,  
10 and according to a first preferred embodiment of the present invention. It is also contemplated that any type of item, including liquid and solid as well as edibles, non-edibles and medicines, can be utilized with the bag 10 according to the present invention. As also previously described, the present invention is an improvement over prior art devices and in particular discloses an  
15 improvement in tamper evident packaging technology and which enables a user to quickly and effectively determine instances in which the bag has been tampered with (previously opened) thereby compromising the security of the contents held within the bag.

As best illustrated in Figs. 1A and 1B, first 14 and second 16 sheets of a  
20 plasticized material (typically rectangular in shape) are illustrated. The sheets 14 and 16 are secured together along opposite extending side edges 18 and 20, respectively, and substantially from top to bottom edges of the attached sheets. It is also contemplated that the sheets 14 and 16 can be either transparent or

colored (tinted) as desired by one skilled in the art and depending upon the contents of the bag.

As further illustrated by the enlarged partial view of Fig. 2, a pair of individual reclosable portions extend in opposing and spaced apart fashion and proximate a top 22 extending edge of the sheets 14 and 16 of material. Specifically, a first (or upper) pair of reclosable portions are illustrated by opposing and configured portions 24 and 26, extending along inner facing surfaces of sheets 14 and 16, respectively. A second (or lower) pair of reclosable portions are further illustrated by likewise opposing, spaced and parallel extending portions 28 and 30. The configuration of the reclosable portions is, by itself, known in the art and such as is illustrated in the intermediate assembly view of Fig. 2. Through the traversing action of an attached zipper portion, to be subsequently described, the reclosable portions are either biasingly engaged together or pulled apart based upon the direction of traverse of the zipper.

A looped header portion 32 extends from the reclosable portions and along a selected distance corresponding to the top. Typically, and as best illustrated in Fig. 2, a portion of the header (see as illustrated in phantom at 32') is removed during the manufacturing process of the bag and in order to facilitate the subsequent attachment of the zipper, shown at 34.

As best shown in Fig. 3, the zipper 34 is secured over the pairs 24 & 26 and 28 & 30 of reclosable portions, in proximity to an extending edge of the looped header portion 32 (following removal of the edge portion 32'). As best

illustrated in the exploded view of Fig. 2, the zipper 34 exhibits a configured outer body and which includes a pair of upper 36 and lower 38 axially extending slots. The slots 36 and 38 correspond in placement with the pairs 24 & 26 and 28 & 30 spaced apart reclosable portions, and such that the upper one  
5 36 of the slots includes a dividing member 40 extending in one direction and for disengaging the associated pair of reclosable portions.

One or more items (such as again are representatively illustrated at 12 in Fig. 1A) are pre-inserted into an open bottom (see further as generally shown at 42 in Fig. 1B) established between the opposite extending sides 18  
10 and 20 of the first and second sheets and prior to sealingly engaging the bottom. The bottom is sealingly engaged (closed) in a permanent (tamper-evident openable) fashion, such as through the provision of an adhesive (permanent seal) strip 44 extends along a bottom edge of the sheet 16, as again shown in Fig. 1B, and which compressed against an opposing facing portion of  
15 the sheet 14. Typically, a peel away tape (not shown) is removed from the strip 44 and prior to permanently (tamper evidently) closing the bottom. Alternatively, the bottom is closed by heat staking the lower extending edges of the first and second sheets together and in the manner illustrated in Fig. 1A.

Subsequent to attaching the zipper 34 to the edge locations of the pairs  
20 24 & 26 and 28 & 30 end stops (see at 46 and 48) are formed at each of opposite ends of the reclosable portions. In a particular application, the end stops 46 and 48 are formed by heat compressing the side edges of the bag proximate the reclosable portions.



In order to open the bag, and as is best shown in Fig. 4, the zipper 34 is traversed, see arrow 50, in a given direction along the pairs of reclosable portions, in order to section the tamper-evident looped header portion 32, as further indicated by directional arrow 52. In combination with sectioning the header portion 32, the upper pair of reclosable portions 24 & 26 is biasingly opened (see again Fig. 4) by virtue of the direction of traverse of the zipper 34. Upon traversing the zipper 34 and opening the upper pair of reclosable portions, the lower pair of reclosable portions (see again at 28 & 30) is subsequently manually disengaged (opened), and such as by the user pulling apart at the seams (not shown) to complete the opening process of the bag.

Referring to Fig. 5, a plan view is illustrated at 54 of an alternate configuration of the double resealable bag and illustrating a manually tear away and tamper evident header, see at 55. In particular, the traversing of the zipper 34, and opening/closing of a selected one of first 56 and second 58 pairs of reclosable portions, occurs independently from the manually tearing away, see further as indicated by directional arrow 60, of the header portion 55 from the top edge of the bag and which detaches along perforated portion 62.

Referring finally Fig. 6, a perspective view similar to that previously shown in Fig. 1A is illustrated at 64. The illustration of Fig. 6 is substantially identical to that shown at 10 in Fig. 1A and with the exception of some slight variances in the shaping of the tamper evident and looped header portion 66.

A method for manufacturing a tamper evident and resealable bag is also disclosed, incorporating the structure as substantially described above. In

particular, the bag is constructed from a singled formed piece of material, such as unwound from a roll or reel and this method includes the steps of securing together first and second sheets of a plasticized material along opposite extending side edges thereof, forming at least one pair of extending and reclosable portions in inwardly opposing fashion and proximate top extending edges of the sheets of material, and forming a looped header portion in extending fashion from the reclosable portions and along a selected distance corresponding to the top. Additional steps include attaching a zipper over the reclosable portions in proximity to the looped header portion and the pre-  
10 inserting at least one item into an open bottom established between the opposite extending sides of the first and second sheets and prior to sealingly engaging the bottom.

Additional method steps include traversing the zipper along the reclosable portions and in order to disengage the looped header portion,  
15 forming first and second pairs of reclosable portions in spaced apart fashion and attaching the zipper to the first and second pairs of reclosable portions. Yet additional steps include traversing the zipper to reclosably open a selected one of the first and second pairs of reclosable portions, reclosably opening an upper one of the pairs of reclosable portions, and forming end stops (such as by  
20 heat compressing) at opposite ends of said reclosable portions and subsequent to attaching said zipper. Further steps include adhesively sealing said bottom following pre-insertion of the items or, alternatively, heat sealing the bottom following pre-insertion of the items.

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Having described my invention, other and additional preferred embodiments will become apparent to those skilled in the art to which it pertains and without deviating from the scope of the appended claims:

I claim: